

REMARKS

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested.

Claims 1-10 are pending in the application.

Entry of Amendment under 37 C.F.R. § 1.116

The Applicant requests entry of this Rule 116 Response because: the response was not earlier presented because the Applicant believed in good faith that the cited references did not disclose the present invention as previously claimed.

I. Rejection under 35 U.S.C. § 102

In the Office Action, at page 2, numbered paragraph 4, claims 1-10 were rejected under 35 U.S.C. § 102(e) as being unpatentable over U.S. Patent No. 6,583,881 to Watanabe et al. This rejection is respectfully traversed because Watanabe does not discuss or suggest:

specifying means operable by the operator for specifying a direction of a present position of the operator with respect to the robot, referring to the model of the robot displayed on the display device;

second displaying means for displaying an image of a three-dimensional model of the object, as viewed from the specified direction of the operator, on the display device,

as recited in independent claim 1.

Further, Watanabe does not discuss or suggest:

specifying means operable by the operator for specifying a direction of a present position of the operator with respect to the robot, referring to the model of the robot displayed on the display device;

second displaying means for displaying an image of a three-dimensional model of the object and the taught points, as viewed from the specified direction of the operator, on the display device,

as recited in independent claim 2.

Also, Watanabe does not discuss or suggest:

specifying means operable by the operator for specifying a direction of a present position of the operator with respect to the object, referring to the model of the object displayed on the display device;

second displaying means for displaying an image of a three-dimensional model of the object as viewed from the specified direction of the operator on the display device,

as recited in independent claim 3.

Watanabe additionally does not discuss or suggest:

specifying means for enabling the operator to specify a direction of a present position of the operator with respect to the object, referring to the model of the robot displayed on the display device;

second displaying means for displaying an image of a three-dimensional model of the object and the taught points as viewed from the specified direction of the operator on the display device,

as recited in independent claim 4.

Watanabe discusses a robot information processing system in which a position and posture of a robot are calculated and sent to a PC. On the basis of this position and posture information, animation display information of a work cell including the position and posture of the robot is created and then sent to a teaching pendant. In the teaching pendant, the animation display information is received, and an animation image is displayed on a display section. Watanabe discusses that an information processing device includes means for directly or indirectly sending information stored in the information processing device via a bi-directional communication path to the teaching pendant, where the stored information is based on control information received at the information processing device from the teaching pendant.

Watanabe does not discuss or suggest a specifying means operable by an operator to specify a direction of a present position of the operator with respect to a robot, referring to a model of the robot displayed on a display device. The Examiner alleges that Fig. 3, and particularly, element 106 of Fig. 3, shows a specifying means operable by an operator to specify a direction of a present position of the operator with respect to a robot, referring to a model of the robot displayed on the display device. The Applicants respectfully disagree. In particular, at element 106 of Fig. 3, as discussed at col. 4, lines 35-39 of Watanabe, a position and posture of the robot at the current time are calculated on the basis of a robot operating program and a servo delay model, and the calculated robot position and posture data (that is, operating position information) is sent to the PC 3 via a cable 5. Watanabe discusses only that the current position and posture of the robot are calculated. However, Watanabe includes no discussion at all of providing a specifying means for specifying a direction of a present position of the operator with respect to the robot. Calculating the position and posture of the robot is not specifying a direction of a position of the operator with respect to the robot.

In contrast, the present application discusses that the operator specifies a place where the operator presently exists by moving a cursor to a position where the operator exists in a plan-view area and a side-view area in a display section 2a and clicks the set button, to designate the direction of the operator with respect to the robot.

While Watanabe does discuss the use of a teaching pendant 2 upon which an animation image is displayed, Watanabe does not suggest that the teaching pendant 2 includes a specifying means that allows an operator, who moves the display device around the object, to specifically specify a direction of the present position of the operator with respect to the robot, by referring to the model of the robot that is displayed on the display device. The display device 2 of the present application displays a model of the robot in a plan-view area of the display section 2a and in a side-view area of the display section 2a. Thus, by referring to the model of the robot that is displayed on the display device 2 in the plan-view and side-view areas of the display section 2a, the operator is specifically able to operate a specifying means to specify a direction of the position of the operator himself with respect to the robot, by referring to the model that is already displayed on the display device 2. Watanabe does not suggest that the teaching pendant 2 allows an operator to specify a direction of a present position of the operator with respect to the robot, and does not suggest that the operator can specify his position by referring to a model of the robot that is displayed on the teaching pendant 2.

In addition, Watanabe does not discuss or suggest a second displaying means that displays an image of a three-dimensional model of an object, as viewed from the specified direction of the operator, on the display device. While the teaching pendant does contain storage capacity for displaying animation and graphical models, Watanabe is silent as to providing a second displaying means of the display device 2 that displays an image of a three-dimensional model of an object as viewed from the specified direction of the operator. The Examiner alleges that element 311 of Fig. 4 corresponds with a second displaying means for displaying an image of a three-dimensional model of the object, as viewed from the specified direction of the operator, on the display device. The Applicants respectfully disagree.

Specifically, as discussed at p. 8, lines 21-27, the present application recites that after the operation of specifying the direction of the operator with respect to the robot, the operator clicks an execute button to start automatic calculation of a line-of-sight vector and a three-dimensional model of the object as viewed from the present view point of the operator is displayed in the object display area of the display section 2a. Watanabe does discuss that after a current position and posture of the robot is sent to the PC, an animation image is displayed

from the PC 3 to the teaching pendant 2 at operation 311. However, displaying an animation image of the position and posture of the robot at the teaching pendant 2 is not a second displaying means for displaying an image of a three-dimensional model of an object as viewed from the specified direction of the operator. Watanabe includes no discussion at all of providing a second displaying means that displays an image as viewed from a specified direction of an operator, and nothing in the Watanabe disclosure or in the Office Action clarifies as to how the teaching pendant 2 provides a second displaying means or displays an image, specifically as viewed from a specified direction of an operator, where the second displaying means that displays the three-dimensional model of the object viewed from the direction of the operator is separate from the first displaying means that displays an image of the model of the robot.

As Watanabe includes no discussion of providing a specifying means that allows the operator to specify a direction of the operator with respect to the robot, it is entirely unclear as to how Watanabe discusses a second displaying means that displays an image of a model of an object as viewed from a specified direction of the operator. If there is no specifying means in Watanabe that allows an operator to specify a direction of the operator with respect to the robot, then it is unclear as to how an image of a model can be displayed as viewed from the specified direction of the operator, when no such direction has previously been specified.

In addition, Watanabe does not suggest a specifying means operable by the operator for specifying a direction of a present position of the operator with respect to the object, referring to the model of the object displayed on the display device, as recited in independent claim 3, for example.

Watanabe also does not discuss or suggest:

selecting means operable by the operator for selecting one of the taught points displayed on the display device;

determining means for determining whether or not a selected taught point is visible without interference on the display device in a direction of a present line of sight on the three-dimensional model; and

altering means for altering the line of sight on the three-dimensional model on the display device such that the selected taught point is visible without interference in the direction of the altered line of sight when it is determined that the selected taught point is not visible on the display device by said determining means,

as recited in independent claim 5.

Watanabe does not suggest a determining means for determining whether or not a selected taught point is visible without interference on the display device in a direction of a present line of sight on the three-dimensional model, and an altering means for altering the line of sight on the three-dimensional model on the display device such that the selected taught point is visible without interference in the direction of the altered line of sight when it is determined that the selected taught point is not visible on the display device by said determining means. The Office Action includes no discussion at all of independent claim 5. Watanabe does not suggest that the teaching pendant 2 displays an image of a three-dimensional model of the object and positions of the taught points on a display device, does not discuss a selecting means operable by the operator to select one of the taught points displayed on the display device, and does not discuss or suggest a determining means for determining whether or not a selected taught point is visible without interference on the display device in a direction of a present line of sight on the three-dimensional model. Watanabe does not discuss a selecting means that selects one of the taught points that are displayed on the teaching pendant 2 and does not suggest that it is determined whether a selected taught point is visible without interference on the teaching pendant 2 in a direction of a present line of sight on the model.

In addition, Watanabe does not discuss or suggest an altering means for altering the line of sight on the three-dimensional model on the teaching pendant 2 such that the selected taught point is visible without interference in the direction of the altered line of sight when it is determined that the selected taught point is not visible on the display device by the determining means. The Office Action includes no discussion of this element or how the system of Watanabe suggests such, and Watanabe does not suggest such.

Therefore, Watanabe does not discuss or suggest "specifying means operable by the operator for specifying a direction of a present position of the operator with respect to the robot, referring to the model of the robot displayed on the display device; and second displaying means for displaying an image of a three-dimensional model of the object, as viewed from the specified direction of the operator, on the display device," as recited in independent claim 1. Also, Watanabe does not discuss or suggest "specifying means operable by the operator for specifying a direction of a present position of the operator with respect to the robot, referring to the model of the robot displayed on the display device; and second displaying means for displaying an image of a three-dimensional model of the object and the taught points, as viewed from the specified direction of the operator, on the display device," as recited in independent claim 2. Further, Watanabe does not discuss or suggest "specifying means operable by the operator for specifying a direction of a present position of the operator with respect to the object,

referring to the model of the object displayed on the display device; and second displaying means for displaying an image of a three-dimensional model of the object as viewed from the specified direction of the operator on the display device,” as recited in independent claim 3. Watanabe additionally does not discuss or suggest “specifying means for enabling the operator to specify a direction of a present position of the operator with respect to the object, referring to the model of the robot displayed on the display device; and second displaying means for displaying an image of a three-dimensional model of the object and the taught points as viewed from the specified direction of the operator on the display device,” as recited in independent claim 4. Watanabe also does not discuss or suggest “selecting means operable by the operator for selecting one of the taught points displayed on the display device; determining means for determining whether or not a selected taught point is visible without interference on the display device in a direction of a present line of sight on the three-dimensional model; and altering means for altering the line of sight on the three-dimensional model on the display device such that the selected taught point is visible without interference in the direction of the altered line of sight when it is determined that the selected taught point is not visible on the display device by said determining means,” as recited in independent claim 5. Thus, independent claims 1-5 patentably distinguish over the reference relied upon. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Claims 6-10 depend either directly or indirectly from independent claims 1-5 and include all the features of their respective independent claims, plus additional features that are not discussed or suggested by the reference relied upon. For example, claim 6 recites that “at least an image of a part of a model of a tool attached to the robot is displayed on the display device with the display of the three-dimensional model of the object, when the robot is operated such that the tool is located in the vicinity of the object.” Therefore, claims 6-10 patentably distinguish over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Conclusion

In accordance with the foregoing, claims 1-10 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.


Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: 9/26/07

By: 
Kari P. Footland
Registration No. 55,187

1201 New York Avenue, NW, 7th Floor
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501